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ABSTRACT

The State of Iowa conducted several higher education inventory studies in an effort to identify strategies and priorities for the future. The Long Range Strategic Planning Study, the first of the studies to be undertaken, was charged with reviewing all academic programs, identifying program strengths, and making recommendations for redesigning the university into a smaller, more manageable institution. Peat Marwick Main & Co. conducted numerous educational institution organizational audits and is developing a comprehensive statewide informational data base. The data base is to provide a framework for coordinating and establishing policy for postsecondary education in Iowa and to encourage dialogue on postsecondary education public policy in Iowa. All the study activity created considerable apprehension on campus. Several studies were viewed as program eliminators. Data collected externally compared with departmental data was often shown to be inconsistent, further enhancing apprehension. Reconciling the data proved to be difficult and underscored the need for an information system: an electronic storehouse that can efficiently and consistently meet the data needs of future studies. Enthusiasm has increased from all quarters for building the information that is now in its beginning stages. Contains 23 references. (GLR)

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TAKING INVENTORY OF IOWA HIGHER EDUCATION:

THE INSTITUTIONAL RESEARCH STOREHOUSE

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for Management Research, Policy Analysis, and Planning

This paper was presented at the Thirtieth Annual Forum of the Association for Institutional Research held at The Galt House, Louisville, Kentucky, May 13-16, 1990. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Jean Endo
Chair and Editor
Forum Publications Editorial
Advisory Committee

ABSTRACT

The State of Iowa has been taking inventory of higher education. In 1987, Iowa State University's new president appointed a long range strategic planning committee. Subsequently, the Board of Regents contracted with consultants to conduct organizational audits of the three Regent universities, including a program duplication study. The Governor and the Legislature initiated separate studies of higher education. The Institutional Research Office has served as a primary resource for the historical and comparative data used in these studies. This paper reviews data requirements for the studies and discusses the impact of the studies on the Office of Institutional Research.

TAKING INVENTORY OF IOWA HIGHER EDUCATION

THE INSTITUTIONAL RESEARCH STOREHOUSE

Iowa State University experienced tremendous growth in the late 1960s and 1970s under the leadership of a president whose tenure lasted over 20 years. In the 1980s, economic factors, particularly the farm crisis, placed severe constraints on university resources. Solutions were sought for the problems of financing higher education. A host of studies was initiated in an effort to identify strategies and priorities for the future. The need for identifying priorities was similar to that described by Shirley and Volkwein (1978):

> The need for priority setting at the campus level has always existed, even during the golden 1960s when there was a seemingly unlimited supply of students and dollars gravitating to institutions of higher education. Rarely was the need recognized, however, and only with the realities of "steady state" financing have institutions begun to address seriously the question of priorities. (p. 473)

In 1987 the inventory of higher education began when a new president at Iowa State University appointed a Long Range Strategic Planning Committee. Also in 1987, the State Board of Regents engaged Peat Marwick Main & Co. (Peat Marwick) to conduct the first phase of an organizational audit, which identified a total of over 35 areas to be studied for the Regent institutions (Iowa State University, University of Iowa, University of Northern Iowa, Iowa School for the Deaf, and Iowa Braille and Sight Saving School). Subseqently, the Governor appointed a Postsecondary Education Study Committee to review major postsecondary education issues and concerns in the State. At about the same time, the Legislature established a citizen's Higher Education Task Force with subcommittees to study access and affordability, finance, governance, quality and capacity, and articulation and vocational education.

Each of these studies was concerned, at some level, with accountability and with measures of institutional effectiveness. In writing on institutional effectiveness, Taylor (1989) has concluded that, "While one may believe that what sustains and enhances higher education are those few influential persons who can convey institutional effectiveness and academic quality without saying a word, the rest of us need evidence to persuade us of the merit and worth of colleges and universities" (p. 17).

Much of the evidence used in the studies was provided for a series of program reviews. Clark (1983) notes that academic program review or evaluation is:

> ...only one part of institutional assessment for strategic planning. Nevertheless, it is often considered a key element in the evaluation of institutional strengths and weaknesses, since it focuses attention on the performance of individual degree programs, departments, or other academic units such as schools, colleges, or off-campus centers. Narrowing attention in this way is particularly helpful when the evaluation results are to be linked with the planning process. (p. 27)

The Office of Institutional Research was involved in providing evidence and the information necessary for assessment and decision-making for the studies described in this paper. Out of this experience has grown the concept for an institutional research storehouse which will provide data which are relevant, in the appropriate quantity, and of high quality for future planning and review. (Shirley, 1987)

DESCRIPTION OF STUDIES

Long Range Strategic Planning

The Long Range Strategic Planning Study was the first of the studies to be undertaken. As part of the study, the president of the university requested that all academic programs be reviewed. The committee was charged with scrutinizing all programs, identifying program strengths, and making recommendations for the redesign of the university into a smaller, more selective institution that operated fewer programs and managed them better. The committee was asked to complete the study in 13 months.

The committee presented the first volume of a two-part report in November, 1988, after 18 months of concentrated study. This document was a comprehensive study of the university's mission, external environment, and goals plus a description of the procedures, criteria, and principles to be used in the review of academic programs. The second volume was completed in January, 1989, by a subcommittee composed of members of the Long Range Strategic Planning Committee with faculty rank. This report presented the process, findings, and recommendations of the actual review of all academic programs.

The role of the Office of Institutional Research throughout the long range strategic planning process was to serve as a primary resource in determining what data could be collected in a relatively short span of time. A staff member from the Office of Institutional Research served on the committee. Most of the data were provided directly from Departmental Profiles maintained in the Office of Institutional Research. These profiles contained five years of summary data on budget and expenditures, staffing, students, and courses.

Peat Marwick Main & Co. Organizational Audits

In February, 1988, the Board of Regents entered into a contract with Peat Marwick Main & Co. for the second phase of the organizational audit, a series of focused studies of the Board and of the institutions under its jurisdiction. Those audits were completed in fall 1989. Twelve of the studies were Regent-wide: (a) Develop Strategic Planning Process, (b) Evaluate Board and Institutional Organizational Structures, (c) Review Program Change Methodology, (d) Examine Areas of Potential Program Duplication, (e) Evaluate Length of Time to Complete an Undergraduate Degree, (f) Perform Funding Analysis to Assess Adequacy of Program Support, (g) Review Financial/Management Reporting Processes, (h) Review Board of Regents Budgeting Process, (i) Review Budget Planning Activities, (j) Conduct Analyses of Physical Plant Expenditures, (k) Assess the Adequacy of Performance Evaluation Processes for Presidents, and (l) Design a Framework for Faculty Workload Studies.

Eight studies related directly to Iowa State University: (a) Assess Current Institutional Planning Processes, (b) Conduct Organization and Staffing Analysis, (c) Analyze Program Review Process, (d) Evaluate the Adequacy of Internal Policies and Procedures, (e) Examine Faculty Workload, (f) Examine Indirect Cost Rate Setting Processes and Current Rates, (g) Examine Management Support for Research Productivity, and (h) Review Facilities Planning and Management.

The Director of Institutional Research served on the university steering committee for the studies. The institutional research staff participated in extensive discussions with the Peat Marwick project team and representatives of the other Regent universities on the design of the studies and the specification of data to be collected. The office had major roles in the

design and collection of data for the studies on program duplication and faculty workload. Those two studies are discussed separately below.

Program Duplication Study

The Program Duplication Study included the study of potentially duplicative academic programs at the three state universities in Iowa: Iowa State University, the University of Iowa, and the University of Northern Iowa. The first step in this study was the creation of a program inventory. From this inventory 16 potentially duplicative program areas were identified at the three state universities. Five of these program areas, Business, Education, Engineering, Home Economics, and Journalism, were targeted for review by teams of external consultants engaged by Peat Marwick. An additional six programs at Iowa State University were subsequently identified for review by external consultants selected by the Board Office and the universities.

The Office of Institutional Research provided extensive data for each of the targeted areas in a format developed jointly for the three Regent universities.

Faculty Workload Study

The Peat Marwick Faculty Workload Study was initially intended to analyze faculty workload, the processes and criteria used in determining faculty salaries and merit increases, and the deployment of teaching and research assistants. The project team conducted a number of interviews on each campus, reviewed the literature, and determined, in consultation with additional subcontractors, to collect quantitative data for Iowa State University and a set of peer universities on instructional workload only.

The Office of Institutional Research collaborated with Peat Marwick and the other Regent Universities in the design of a new set of reports and the collection of peer data.

Other Peat Marwick Studies

Although the activities of institutional research were less visible for the other Peat Marwick studies, the office played a significant role in many of them. Existing information was provided to several project teams, and staff members were interviewed for a number of the studies. Institutional research personnel also reviewed and commented (sometimes extensively) on the draft and final reports and recommendations submitted by the consultants. In such comments, particular areas of emphasis included recommendations for the design of continuing studies, the selection of peers and use of peer comparisons, and the selection and development of performance indicators.

Program Review Criteria and Institutional Research Data

The program review criteria and data requested for the Peat Marwick studies bore a number of similarities to the program review criteria and data requested for the campus Long Range Strategic Planning Program Review. Those criteria and data items are presented together in Tables 1 and 2.

Table 1
Comparison of Program Review Criteria

Long Range Strategic Planning Program Review	Peat Marwick Main & Co. Review of Potentially Duplicative Programs
Centrality to university mission	Centrality to institutional mission
Quality--current and potential	Quality
Demand--by majors and in total	Past and projected student demand
Financial considerations--costs relative to revenues	Resources and Revenues
Comparative advantage and uniqueness	Program scope and focus
	Projected labor market demand
	Linkages of the program to other programs
	Accessibility

Table 2.
Comparison of Data Requested for Academic Departments

Long Range Strategic Planning Program Review	Peat Marwick Studies on Potentially Duplicative Programs and Faculty Workload
FTE faculty	FTE faculty by rank, graduate assistants, professional and scientific staff, classified staff
Headcount of tenured, tenure-track, temporary, adjunct, and visiting faculty	Headcount of tenured, tenure-track, and non tenure-track faculty
	Number of undergraduate and graduate applications to each program
Headcount of undergraduate and graduate majors by program	Headcount of undergraduate and graduate majors by program
Number of undergraduate and graduate degrees awarded	Number of undergraduate and graduate degrees awarded
SCH taught to majors in each department, to other majors in the college, and to majors outside the college	SCH taught to undergraduate and graduate majors in each department and to undergraduate and graduate majors outside the department
Fiscal year expenditures by funding source: grants, contracts, gifts	Fiscal year expenditures by funding source: general fund, government grants and contracts, private gifts and grants
Cost per SCH	Fiscal year expenditures by object: faculty salaries, support staff salaries, graduate assistant salaries, operating expenses
	Estimated tuition revenue by program
Frequency count of undergraduate and graduate sections by section size	
Fall term and fiscal year SCH by course level	Fall term SCH by course level and section types
Ratio of SCH per FTE instructor: Iowa State University's departments compared with departments at the university's designated peers	FCH and SCH per FTE tenured/tenure-track faculty, non tenure-track faculty, and teaching assistants: Iowa State University colleges compared with selected peer colleges

A large portion of the data requested for the Long Range Strategic Planning Committee was provided from Departmental Profiles which had been compiled by the Office of Institutional Research since 1977. The Departmental Profiles contained data for the most recent year along with a percent change over four years. Some members of the Long Range Strategic Planning Committee were familiar with the Departmental Profiles and were comfortable with using those data in their existing formats.

The ratios of student credit hours per full-time equivalent instructor in the peer comparisons were based on data exchanged annually with members of the Association of American Universities Data Exchange (AAUDE) plus some individual data from members of the Southern Universities Group.

For the Peat Marwick program duplication study, all three universities were required to submit data in the same format. The Departmental Profiles contained some of the data but not in the formats required. The Office of Institutional Research compiled the necessary tables from a variety of hard copy reports maintained in the office. Data were requested for five years. The data provided were used, in conjunction with more qualitative information, in the evaluation of academic programs and the formulation of recommendations in the study areas.

Peer comparison data for the Faculty Workload Study were collected by the office from peers selected by each individual college. The study was done at the college level and requested college summaries of faculty credit hours, student credit hours, and full-time equivalent instructors for tenured/tenure-track faculty, non tenure-track faculty, and teaching assistants.

Iowa Postsecondary Education Study

The Steering Committee appointed by the Governor for the Postsecondary Education Study included representatives of the Iowa College Aid Commission and the three principal sectors of postsecondary education in Iowa: the Regents universities, the merged area schools, and the independent colleges and universities. The overall goals of this study were to provide a framework for coordinating and establishing policy for postsecondary education in Iowa and to encourage dialogue on postsecondary education public policy in Iowa.

Peat Marwick was engaged in 1988 to address four objectives for this study: (a) prepare a profile of Iowa postsecondary education, (b) assemble a dictionary of data elements and develop a primary data base for postsecondary education in Iowa, (c) identify and define the overarching policy issues confronting postsecondary education in Iowa, and (d) recommend a process to support an ongoing framework for coordinating and establishing public policy for postsecondary education.

To develop a statewide data base, Peat Marwick requested copies of institutional responses to a statewide enrollment report, all Integrated Postsecondary Education Data Systems (IPEDS) reports, Equal Employment Opportunity (EEO) reports, and Department of Education Application and Fiscal Operations (FISAP) reports. The Office of Institutional Research provided this information and subsequently reviewed draft versions of profiles prepared by the project team. The final reports of the study, issued in January and February, 1989, included a "Profile of Postsecondary Education in the State of Iowa", a report on "Overarching Public Policy Issues Facing Postsecondary Education in the State of Iowa" and recommendations for a "Process for Policy Development and Coordination in Iowa".

Higher Education Task Force Studies

The Iowa Legislative Task Force on Postsecondary Education included seven citizens and four legislators, appointed in the summer of 1988. The Task Force hired an executive director and research assistant, and engaged consultants from Augenblick, Van de Water and Associates (Denver, Colorado) and Public Policy Research (Olympia, Washington). The Task Force conducted public hearings, followed by interviews with leaders throughout the state, and sponsored a statewide forum on higher education.

Subcommittees were established to work in five issue areas: Articulation and Vocational Education; Educational Opportunity, Access, and Affordability; Finance; Governance; and Quality and Capacity. After the subcommittees made their recommendations, a draft report was discussed at another set of public hearings, and the final report of the Task Force was released in December, 1989.

The Office of Institutional Research assisted in providing data for Iowa State University concerning facilities, enrollments and enrollment projections, programs for women and minorities, off-campus programs, remedial programs, interstate agreements, faculty characteristics and salaries, benefits, teaching assistants, graduation rates, and a number of other specific areas.

IMPLICATIONS FOR INSTITUTIONAL RESEARCH

The Office of Institutional Research relied on two sources of data in responding to the data requests in these studies: existing reports in hard copy and special reports generated through the Administrative Data Processing Center. The office had been aware, before the studies were begun, of the need for better systems to access and transform data into meaningful information. Plans had been underway to develop an information system that could be used for program review, strategic planning, and similar types of studies.

The recommendations from the studies served to provide a stronger rationale for the implementation of these plans and to highlight the role of institutional research as a storehouse of information for future studies. The final report of the Long Range Strategic Planning Committee (1989) included a recommendation that:

> To the extent possible, the Office of the Provost, in cooperation with the Office of Institutional Research, should collect, summarize, and analyze the data that relate to the specific criteria to be used for the comprehensive review of academic programs. In addition to issuing reports that contain both historical information and projections, it would be very helpful to programs, departments, and colleges if the data were available in an electronic form that administrative units could access to perform their own analyses using personal computers and widely available software. Workshops should be held to help administrative personnel understand how to interpret and analyze the data and to recognize limitations that exist in the data. Centralized training should also be provided concerning data bases that need to be developed and maintained at the program, departmental, or college levels. (pp. 98-99)

The University's Long Range Strategic Plan, presented to the Board of Regents in April, 1990, includes a statement very similar to the one recommended by the committee. Further support for the development of a centralized data base came from the recommendations of the Peat Marwick study on Academic Program Review Processes. The final report for that study (Peat Marwick Main & Co., 1989c) included a recommendation that:

> The University should review, together with the colleges, the data needs to support program review activities, as presented in the proposed process. Those common data requirements should be supported more centrally or in a data management environment which provides for ad hoc reporting capabilities. (p. 16)

The university responded in a letter from the Provost to the Board of Regents in April, 1990, as follows:

> Iowa State's protocol for program review includes the development of a centralized data base for program review purposes. A broad-based ad hoc committee has been working since January 1990 to develop the data base that will be available for on-line access by units and can be downloaded to personal computers to perform various analyses. Workshops will be held to help appropriate personnel access, analyze, and interpret the data.

The Faculty Workload Study led to recommendations for the expansion of annual reports on faculty activity at each of the Regent universities. Future reports will include longitudinal comparisons of faculty activity (percent effort given to teaching, research, administration, extension, etc.) and related data on course enrollments, credit hours and degrees awarded. The final report of the Faculty Workload Study (Peat Marwick Main & Co., 1989a) refers to an institutional information system at Iowa State University:

> The University's current administrative information system provides a variety of faculty workload-related data through the information collected for institutional budgeting, course registration and salary administration purposes. The

> information system data are used by institutional research and planning to generate management reports, as well as for external information analysis and exchange through the AAUDE programs. However, the data inputted into the system may not always be set up to produce the combinations of information that would be required to develop and implement a strategic indicator approach....
>
> As ISU considers the information it will require both for strategic planning and for faculty deployment indicators, it should identify the most critical data definitions necessary to pursue both management ends, and work to refine its academic information systems to the extent feasible and desirable. In some cases, information required for the strategic indicators will be better left to the collection, analysis and preparation at the collegiate level, especially where discipline-specific information is being conveyed. (pp. 77-78)

The above recommendations for institutional information systems were endorsed by administrative officials at Iowa State University. In January, 1990, the Office of the Provost, in cooperation with the Office of Institutional Research, appointed an institutional research information system advisory committee. The charge of this advisory group was to assist in the design of a comprehensive information system which would enable administrative offices to access centrally stored data. The Director of Institutional Research chairs the committee with the assistance of three staff members from the Office of Institutional Research. The committee is composed of 32 members representing the offices of the Provost, Business and Finance, Student

Affairs, the Graduate College, and the eight academic colleges. The committee has been meeting for four months and at this time has completed the task of identifying key indicators to be included in the information system.

The Peat Marwick Faculty Workload Study also recommended that the university continue to collect faculty credit hour and student credit hour data for itself and its peers in order to analyze changes over time. Problems had been encountered in the collection of peer data in the Peat Marwick Faculty Workload Study, since many of the peer universities could not provide faculty credit hours and student credit hours for each of the instructor classifications. Also, the departmental composition of the peer colleges did not always match that at Iowa State University. Therefore, the university plans to continue the preparation of an existing report based on data exchanged with the Association of American Universities Data Exchange institutions. These data permit comparisons among similar departments, and thus avoid the difficulty of identifying comparable colleges. However, the university also plans to continue the collection of its own data on instructional workloads in the format developed for the Peat Marwick study since this report has proven useful for internal management and decision-making.

DISCUSSION

All the studies created a great deal of apprehension on campus. Of particular concern were those studies which dealt with individual programs. In the Long Range Strategic Planning review of academic programs, any program could become a target for elimination. In the Peat Marwick review, the threat of elimination was limited to the potentially duplicative programs; yet the removal of one program could impact many other programs offered at the university.

That apprehension was intensified when faculty and staff found some of the data to be inconsistent with departmental data. Up to this time, the university had not had one set of consistent data for program review, planning, and similar activities. The Department Profiles had been in existence for over ten years but were primarily used only by the colleges of Business, Design, and Sciences and Humanities. The remaining colleges used these reports occasionally but generally relied on their own data sets for the operation of their colleges.

In those cases where institutional research data and departmental data were not in agreement, institutional research staff were asked to reconcile the data. This was a time consuming process for all involved, but it pointed out the importance of having a single, reliable data set and helped to lay the groundwork for an information system.

The information system concept is receiving good support from all levels. Faculty and staff members on the institutional research advisory committee are enthusiastic about the new system. Everyone is interested in working with a single source of data rather than the individual data sets which existed before. A new Associate Provost for Planning is relying on the system as a primary data source for program review and planning. The colleges are viewing the system as a major source for accreditation data and for responding to the many survey requests they receive. The departments are interested in trend data for budget requests and analyses.

The key indicators which have been identified for the system are consistent with the data requested for the Long Range Strategic Planning and Peat Marwick studies. Those studies served to help identify a set of common indicators. In addition, representatives on the information system advisory committee have identified key indicators for their own needs.

The development of the information system is still in the infant stages. Many of its features remain uncertain: accessibility, level of aggregation, report requirements, inquiry capabilities, and training of users, just to name a few. One of the characteristics of the system that is a certainty is that the information system of the future will be an electronic storehouse. The goal of this storehouse is to be able to efficiently and consistently meet the data needs of future studies. The Office of Institutional Research at Iowa State University has learned much from the studies that were conducted during the past few years and intends to use those experiences to build a single, easily accessible storehouse.

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